## CLAIMS:

1.    A method to trade objects over a network, comprising:

receiving a first order for an object having at least four dimensions associated with said object;

searching a memory for a second order with an object having said at least four dimensions; and

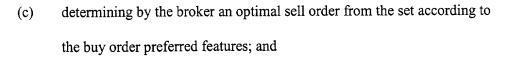matching said first order with said second order in accordance with said search.

2.    The method of claim 1, wherein said first order is a buy order and said second order is a sell order.

3.    The method of claim 1, wherein said first order is a sell order and said second order is a buy order.

4.    The method of claim 1, wherein said object is at least one of a group comprising goods and services.

5.    The method of claim 1, wherein said object is a vehicle.

6.    The method of claim 5, wherein said at least four dimensions for said vehicle comprises at least four dimensions from a group of dimensions comprising manufacturer, model, year, mileage, color, and accessories.

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7.    The method of claim 1, further comprising:

receiving a message to execute said first order using said second order; and

automatically executing said first and second orders in accordance with said

message.


8.    The method of claim 1, further comprising:

receiving a message to change at least one of said first and second orders; and

changing said at least one of said first and second orders in accordance with said

message.


9.    The method of claim 8, wherein said message comprises one of a group of

messages comprising an add order message, a modify order message, and a delete order

message.


10.    The method of claim 1, wherein said first order does not match said second order,

further comprising adding said first order to a list of orders.


11.    A method of matching a buy order with a sell order in an online exchange,

wherein orders are placed by a broker component and received by a trading pit

component, and sell orders and buy orders include at least a price, size and description of

an object, comprising:

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5      (a)     determining by the trading pit component a set of all sell orders in the

exchange that match said buy order;

       (b)     selecting the lowest-price sell order from the set;

       (c)     determining a maximal matching size for the buy order and the selected

sell order;

10     (d)     constructing a fill of said maximal size;

       (e)     reducing the size of the buy order and the selected sell order by said fill

size;

       (f)     determining if the buy order is completely filled; and

       (g)     if the buy order is not completely filled, selecting the next lowest-price

15  sell order and repeating steps (c)-(g).


12.    The method of claim 11, comprising the additional step of notifying the buyer and

seller of a filled order.


/  13.    A method of automatically executing a buy order and a matching sell order in an

online exchange, wherein said online exchange has a trading pit and at least one broker,

and wherein said buy and sell orders contain required features of an object and preferred

features of an object, comprising the steps of:

5      (a)     determining by the trading pit a set of all sell orders that match the buy

                order's required features;

       (b)     sending the set from the trading pit to a broker;


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(c)     determining by the broker an optimal sell order from the set according to

the buy order preferred features; and

10     (d)     automatically executing the order if there is a match.

14.     A method of trading objects in an online exchange, comprising:

(a)     receiving by a trading pit a first order for an object having at least three

dimensions associated with said object, wherein each dimension has a value;

(b)     searching a memory for other orders with objects having said at least three

5     dimensions wherein the value for each dimension matches the first order,

(c)     returning said other orders to a broker; and

(d)     determining by the broker the optimal match among said other orders.

15.     The method of claim 14, wherein step (d) comprises using quality or price

functions to determine the optimal matching order.

16.     The method of claim 14, wherein said first order is a buy order, and said other

orders are sell orders.

17.     The method of claim 14, wherein said first order is a sell order, and said other

orders are buy orders.

18.     A method of matching a buy order and a sell order, wherein said orders have at

least four dimensions including a price and size in an online exchange, and wherein

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orders are placed by a broker component and received by a trading pit component, comprising:

5    (a)    determining by the trading pit a set of sell orders that match said buy order in every dimension;

(b)    selecting the lowest-price sell order from the set;

(c)    determining a maximal matching size for the buy order and the selected sell order;

10    (d)    constructing a fill of said maximal size;

(e)    reducing the size of the buy order and the size of the selected sell order by said fill size;

(f)    determining if the buy order is completely filled; and

(g)    if the buy order is not completely filled, selecting the next lowest-price

15    sell order and repeating steps (c)-(g).

19.    A method of processing an order by a trading pit component in an online exchange, wherein said order is sent by a broker to the trading pit, comprising:

(a)    receiving a message from the broker, whereby said message contains a command to add an order, a command to modify an existing order or a

5    command to delete an existing order;

(b)    if said message contains a command to add a buy order, determining any matches among sell orders and filling the order if any matches are found, and adding the buy order to a list of buy orders if no matches are found;

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(c) if said message contains a command to add a sell order, adding the sell

10 order to a list of sell orders;

(d) if said message contains a command to modify an existing buy order or a

command to modify an existing sell order, modifying said order in the list

of buy orders or the list of sell orders; and

(e) if said message contains a command to delete an existing buy order or a

15 command to delete an existing sell order, deleting said order from the list

of buy orders or the list of sell orders.

20. The method of claim 19, wherein said list of sell orders is an indexing tree.

21. The method of claim 19, additionally comprising:

(f) tracking an expiration time for the order, and deleting the order from the

list of buy orders or the list of sell orders at the expiration time.

22. The method of claim 19, additionally comprising sending a confirmation message

to the broker if the order is filled.

23. The method of claim 19, wherein if the message contains a command to modify

an existing buy order, step (c) additionally comprises searching for a matching sell order

from the list of sell orders and filling the order if a match is found.

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24. The method of claim 19, comprising the additional step of deleting any buy order or sell order from the list of buy orders or the list of sell orders if the order is completely filled.

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